



Faculty of Science and Engineering
Department of Computing and Mathematics
Session 2009/2010

SN3262: Network Administration, Management & Security

Module Guide

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Module Overview

Delivery

In addition to the lecture you will be attending one laboratory/tutorial and a week. The tutorial periods are an integral part of the course. They provide support for the lectures and supplementary material and activities.

Resources

Outlines notes are provided that you should add to during the lecture periods **and** on the basis of your reading. It is important that you read more than the notes provided.

The url of the web page for the module is:

<http://www.hammoudeh-tea.wikispaces.com/>

Join **Wikispaces**

Aims

- understand the need for network administration and management;
- use shell commands and scripts to perform simple administration tasks;
- to be able to determine the impact of simple ‘management’ scripts on system resources;
- understand the function and operation of a network management system;
- compare and contrast network management architectures;
- to be able to determine simple performance metrics;
- compare and contrast the various areas of network management in the ISO network management model;
- understand the operation of SNMP;
- compare and contrast the areas of security defined in the EITSEC and propose means of implementing security in these areas;
- understand various active and passive threats and propose means of countering them;
- understand the uses of encryption and authentication techniques;
- understand and implement basic cryptographic algorithms;
- compare and contrast Internet security protocols;
- understand the design, function and operation of firewalls;
- compare and contrast various firewall configurations.

Books

Management

Leinwand, A. and Conroy, K. F. (1996) Network Management: A Practical Perspective. 2nd ed. Reading Massachusetts, Addison-Wesley.

Subramanian, M. (2000) Network Management: An Introduction to Principles and Practice. Addison-Wesley.

Security

Cheswick, W.R., Bellovin, S. M. And Rubin, A. D. (2003) Firewalls and Internet Security. 2nd ed. Boston Massachusetts, Addison-Wesley.

Stallings, W. (2000) Network Security Essentials: Applications and Standards. Upper Saddle River, NJ, Prentice Hall.

Others

Schneier, B. (2000) Secrets & Lies. New York, John Wiley & Sons Inc.

Kurose, J. F., Ross, K. W. (2008) Computer Networking. A Top-Down Approach Featuring the Internet. 4nd ed. Pearson Education.

Papers from Web Sites

Stevenson, D. W. (1995) Network Management What it is and what it isn't. Available from: <http://www.sce.carleton.ca/netmanage/NetMngmnt/NetMngmnt.html>

Curtin M. (1997) Introduction to Network Security. Available from: <http://www.interhack.net/pubs/network-security/>

Cisco. (2002) Network Management Basics. Available from: <http://www.cisco.com/en/US/docs/internetworking/technology/handbook/NM-Basics.pdf>

Cisco. (2005) Network Management System Best Practices White Paper. Available from: http://www.cisco.com/warp/public/126/NMS_bestpractice.pdf

<http://www.interhack.net/>

A word of **CAUTION** - material found on the web varies from that which is well written and technically sound to material that is misleading. You must assess all sources that you find on the web.

Sites with useful guides and tutorials

Linux

<http://www.tldp.org/LDP/intro-linux/intro-linux.pdf>

Bash

<http://www.tldp.org/guides.html>

See especially <http://www.tldp.org/LDP/Bash-Beginners-Guide/Bash-Beginners-Guide.pdf>

Python

<http://www.swaroopch.com/notes/Python>

<http://py.vaults.ca/parnassus/apyllo.py>

Useful python modules for RSA

<http://www.4dsolutions.net/ocn/python/primes.py>

Assessment

Two pieces of coursework (one test and one assignment)(30% of unit)

Examination (70% of unit)